

Fawkes' steam plow—the "Lancaster"—is a ponderous machine, weighing 10 tons, when empty, exclusive of the gang of plows. It is built in the most substantial manner, and was the grand object of attraction on the grounds. The general construction of this machine is too well known to the readers of the SCIENTIFIC AMERICAN to require a detailed account here. It was built by Hausworth, Eakins & Co., of the "People's Works," Philadelphia, and is very plain in finish, but did admirable work on the ground by drawing a gang of eight plows (built at Moline, Ill.), and cutting 10 or 11 feet wide. It was said to be capable of plowing 25 acres per day. The two engine-cylinders are 9-inch bore and 15-inch stroke, geared down six to one on to the driving drum; it carries steam at 100 to 140 lbs., and has a direct-action "doctor" (about three-horse), built like the Philadelphia steam fire-engines, with a balance-wheel. The fireman stands in front of the boiler, in a very confined space, and it has only room for carrying about 350 lbs. of coal. The opinion on the grounds seemed to be that the "Lancaster" demonstrated the possibility of plowing by steam, but its paying practicability was more doubtful. The ladies wreathed Mr. Fawkes' machine with evergreens and flowers; planks were placed on top, making temporary seats, and taking a number of the aforesaid ladies on plank, Mr. Fawkes ran around the grounds on a pleasure excursion, to the huge delight of the crowd.

The machine drew up a short distance from the "Financial Office," in front of which was placed a two-horse wagon from which some speeches were made on steam-plowing; Mr. Fawkes being placed by one gentleman in the list with Watt, Fulton and Stephenson. Mr. Fawkes' financial backer was called for, and made his appearance on the stand. He is a short, round-faced gentleman, and wore a grey suit and Bonner hat; with benevolence in his looks, and good business tact in every motion. He was satisfied that Fawkes' principle was the best for a steam-plow, and he should stand by its inventor as long as he had a cent; whereat he made a bow, waved his hat, and sat down amid the most vehement applause. He spoke about a minute, and left the stand with a good word for him on every man's lips. Fawkes was the next called for, but a shower of rain beginning to fall, the crowd incontinently took unto themselves legs and ran away, to the regret of many who very much desired to hear Mr. Fawkes' speech. One of the "Committee on Steam Plows" took that opportunity to state that no award of either prize (first \$3,000, second \$2,000) had been made; that this committee were merely examining to report to the State Board, who would decide upon the propriety of handing Mr. Fawkes the prize before-mentioned. So ended the steam plow trial at the Illinois State Fair.

On the whole it is scarcely possible to avoid the conclusion that steam-plowing is, in point of economy, yet a doubtful question. It is much to be regretted that Messrs. Van Doren & Glover were so unfortunate with their little machine, which is only two months old from its first conception. It is on the principle of the French plow illustrated on page 401, Vol. VI., SCIENTIFIC AMERICAN, or rather a combination of that and "Usher's Plow," illustrated on page 288, Vol. VII. of the same journal. This principle seems a good one for old land, and a machine can be built in this style at a much less cost than a traction engine. That much has yet to be done, and that many men have yet to expend their talents and capital upon steam plows before they can come into common use, is the prevailing opinion at the West.

HORACE L. ARNOLD.

Elk Horn, Wis., Sept. 10, 1859.

THE STEAM FLOW PRIZE.

MESSRS. EDITORS:—The fair is over, and the Executive Committee of the "Prairie State" Agricultural Society has done its duty in the most ignoble manner. The great feature of this fair was the steam-plowing match; a prize of \$3,000 having been offered by the society for the best steam-plow; it was fairly won by that of J. W. Fawkes, of Lancaster, Pa., illustrated on page 161, this volume of the SCIENTIFIC AMERICAN. The mechanical judges appointed to examine and report upon its construction and operation consisted of such men as Isaac Hedges and A. B. Latta, of Cincinnati, and P. W. Gates, of Chicago, who reported in favor of awarding Mr. Fawkes the \$3,000 prize; but the Executive Committee in the face of this recommendation slid down from their

position, and offered Mr. Fawkes the sum of \$1,000. This he at first refused to take, but some friends advised him to accept of it, as his means were very limited and he had been at great expense in going to Illinois to contend for the prize. He felt indignant at the mean treatment he received, and it was hard to persuade him to take the \$1,000, when he considered that the \$3,000 were fairly won, and honestly his due. His plow was operated with satisfaction, in plowing, in traveling over the common roads, both rough and smooth ground, and as a stationary engine for driving machinery such as threshing machines, grist-mills, and other machines, required on a large farm. It is stated that the society had not sufficient funds to pay the prize; if so, they should not have offered it. They have backed out from it, under a mere show of an excuse, because the wooden pins which held the plows broke, owing to the stiffness of the soil and the depth at which they cut the furrow, and because the engine had to be stopped till new pins were furnished. The ground was so hard and dry that a six horse team could barely plow more than an acre and a quarter per day; yet the Mechanical Committee which reported on the subject say, "with the most liberal allowance for hauling water and coal, one mile for stoppages and turnings, the machine will plow 25 acres per day."

The cost for breaking prairie is \$2.50 per acre; according to the estimate of the committee, the steam plow can do this for 64 cts. per acre.

Mr. Fawkes has gone to Chicago, to operate the plow on his own account; from thence he will proceed to New York to be present at the Fair of the American Institute.

X. X.

Freeport, Ill., Sept. 10, 1859.

WEEKLY SUMMARY OF INVENTIONS.

The following inventions are among the most useful improvements patented this week. For the claims to these inventions the reader is referred to the official list on another page.

RECLINING AND FOLDING CHAIR.

This invention consists in a novel way of jointing or connecting together the seat, back and arms of the chair, and attaching said parts to the tops or frame, whereby the occupant of the chair may, with the greatest facility, place himself in a more or less inclined position, and be retained at any desired point within the scope of the movement of the parts, and without being discommoded when in a recumbent position by the arms of the chair. The invention also consists in a novel way of arranging the legs or framing of the chair in connection with the back, seat and arms, connected together as above alluded to, whereby the chair may be folded within a small compass for transportation and also for the convenience of stowage when not required for use. This is a most convenient invention. We have had one of these chairs in use for some time, and can testify to its utility and comfort. It is the invention of J. H. Swan, of New York City.

IMPROVEMENT IN PIANOFORTES.

An invention by F. C. Lighte, of New York City, consists, first, in a plate of glass or other material capable of vibrating freely when struck by the vibrations of the air, arranged below or behind the sound-board of a pianoforte, for the purpose of receiving the vibrations of the air on the under side or back of the sound-board and reverberating them through suitable openings provided in the sound-board, and so causing the said vibrations to swell the tone of the instrument instead of being all absorbed in the bottom and blocking of the case as in most of the pianofortes in use. It consists, secondly, in insulating the iron frame or string plate from the wrest plank and wooden blocks upon which it is supported, by applying collars or washers of india-rubber, gutta-percha, leather, or other suitable moderately yielding material, round the screws by which the said frame or plate is bolted to the wrest plank and wooden blocking of the case, so that the said frame or plate shall rest upon the woodwork only at a few points and not over the whole surface thereof; and thereby, while a firm bed is provided for the said plate or frame, it is prevented interfering with the vibration of the woodwork, and producing the shortness of tone so common to pianofortes with the full iron frame.

IMPROVEMENT IN PISTOLS.

Joseph Rider, of Newark, Ohio, has patented a very ingenious mode of applying a movable breech to a pistol, which enables a common percussion cap to be used both for the priming and the charge, confining the cap in such a way that none of the force developed by the explosion of the detonating powder is lost, and enabling a small

ball to be sent with great force. He also has an improvement in the lock, which enables the pistol to be made very compact. An effective pistol may thus be made small enough to be carried in the vest pocket. The patent for this "parlor pistol," as it is termed, is assigned to Messrs. Remington & Sons, rifle manufacturers, of Iliou, N. Y.

FILTER AND WATER-COOLER.

This invention consists in the employment of spun glass for filtering purposes; the glass being placed over a semi-cylinder in layers and held down in place by longitudinal strips or bars of either metal or wood. It also consists in arranging this filter in a box of a peculiar construction, so that the water will be supplied to the filter and from it to a receiver, where it is cooled and becomes ready for use. The inventor of this improvement is Eugene Duchamp, of St. Martinsville, La.

IMPROVEMENT IN FAUCETS.

The novelty of this invention consists in operating the stem enclosed in the tube of a faucet or stop-cock, by means of a handle so arranged that a lever power is obtained, and the stem is moved back and forth in a slot oblique to the axis of said stem when using the faucet for drawing liquor. Eugene Duchamp, the inventor of the filter mentioned in the preceding paragraph, is also the patentee of this improvement.

IMPROVEMENT IN TREES FOR SIDE-SADDLES.

The object of this invention is to obtain a tree that will be capable of adjusting itself to the back of the animal and correspond to its size and form, so that a perfect fitting saddle may invariably be obtained—one that will not injure the horse but fit snugly and comfortably on the back of the animal, and at the same time form a more agreeable seat for the rider than those of usual construction. The invention consists in connecting the two bars of the tree by a bridge at a point which corresponds with the hollow or lowest part of the back or dorsal vertebrae of the animal, and dispensing with the "head" which has hitherto connected the front ends of the bars directly over the withers of the animal. The inventor is Henry Adams, of New York City.

IMPROVED SEAL LOCK.

This invention is designed as a safeguard against dishonest employees on railroad freight trains, and the like. The object of the invention is to attach or combine with a lock a certain means which will disclose the opening of the lock, even if done in a legitimate way. The invention consists in combining with a padlock, or any lock provided with a shackle, a supplemental shackle so arranged as to be locked or fastened with a lead or other soft metal tube, which must be severed in order to detach the tube, the severed tube indicating that the lock has been opened. It is the invention of J. H. Lyon, New York City.

IMPROVED LOCOMOTIVE LAMP.

This invention consists in so combining an ellipsoidal and a paraboloidal reflector that a large flame may be used, and the rays of light which issue therefrom be projected parallelly within the limited dimensions required in order to receive the full benefit thereof. In locomotive lamps, commonly termed "head lamps," which are placed on the front part of the locomotive in order to throw light on the track, a paraboloidal reflector is used in order that the reflected rays may be projected parallelly and, so far as possible, kept within a space equal in width to the track. In order, however, to carry out this plan, the flame of the lamp is necessarily placed at the focus of the paraboloid, and as the focus of a paraboloid of sufficient dimensions to keep the rays of light within a compass equal to the width of the track, is quite near the back end of the paraboloid, a flame of quite limited size can only be used. By this invention, as previously stated, a large flame may be used and made to throw a more brilliant and intense light on the track at a greater distance than usual. The invention is applicable to ships, and also may be used for signal lights, &c. The inventor is N. J. Knapp, of Chicago, Ill.

IMPROVED WEIGHING DEVICE.

The object of this invention is to obtain a weighing device by which articles may be weighed accurately and with facility, the adjustment of poise weights dispensed with, and at the same time one that will admit of being used on a counter as the ordinary counter scales. The invention consists in combining a spring balance with the beam lever and scoop platform, whereby the desired end is attained. The inventor is J. A. Turnbull, of West Meriden, Conn.