# New Inventions.

### Machine for Grinding Saws.

On the 23d of September last a patent was granted to Albert S. Nippes, of Manyunck, near Philadelphia, Pa., for a machine for grinding saws. Last week the inventor was in this city, and exhibited to us a working model of his invention, and it is, undoubtedly, a good machine for this purpose. The object of the improvement is the grinding of saw plates positively correct—a result which has always been very difficult to accomplish, owing to the wearing away of the stone while grinding.

In this machine there is a self-adjusting pattern, used for giving shape to the saw plate by causing a face plate, or the grindstone to approach or recede from one another to vary the bevel or thickness of the saw plate, and to compensate for the wearing away of the stone while grinding. All the devices and parts of this machine are simple, and we should suppose that it would be likely to meet the wants of saw manufacturers in every part of the world, and come into general use. Manufacturers of saw plates should give it a careful and candid examination.

### Hand Printing Machine.

This illustration is a perspective view of a small and neat hand machine for printing. Its object is to print letter after letter, as a substitute for writing with pen and ink, and the devices combined to execute the printing continuously in lines, are ingenious.

A is a circular case, with a plate or cover inside, which has an opening in it for the sliding lever post. B is a hollow base plate, supporting all the parts. C is a circular rim around the top of the case. The letters of the alphabet, numbers, punctuating marks, and spaces are laid out regularly around it, stamped or printed. There is an indent under the rim below each letter to receive the pointed end, *c*, (which is the fulcrum in pressing) of the impressing lever key, D, which is pressed down to make each impression. This lever is secured on a transverse axis pin, *e*, passing through the vertical sliding post, E. There is an inking roller, F, at each side. The two rollers are set on a vibrating step, G. Their faces are broad, so that by raising one and depressing the other gradually their extended surface supplies ink for a considerable amount of printing.

H is a type wheel secured on the sliding post, E, and is moved around, conjointly with the position of the lever, D. The type are secured at proper distances apart, between two rims. Each letter is so arranged that when the lever, D, is pressed down, the letter on the type wheel corresponding to that on the rim, C, against which the point, *c*, is forced upwards, will be impressed on the sheet of paper, P.

I is a vibrating axis extending across the machine. It is operated by a bell crank on the foot of the sliding post, D, as it is pressed down. J is a platten cushion, which forces the paper against the type wheel, H. The paper passes between two guide rollers, R, which hold it by springs snugly between them. The paper, P, the rollers, R, and their standards constitute a small frame that is fed across the machine to print line after line of letters separately, forming words and sentences when printed. The standards, S, of the rollers, R, slide along axis I, and traverse the distance for each letter by each motion of the key lever, D. When one line is printed, the paper is turned round the exact distance for another line, by turning the top roller, R, one notch of its pinion, M; the small frame of the rollers are then pushed to the other side by hand, and the machine is ready to print another continuous line, by simply vibrating the key lever, D.

*Operation.*—Bring the point, *c*, into the indent under rim, C, below the letter desired to be printed on P, and press down on D; the sliding post, E, is then forced down, (*c* being the fulcrum of the lever,) and a spring lever on the foot of this post, inside, connected with an arm to the shaft, I, vibrates it, drawing forward the impressing cushion, J, and forcing the paper against the projecting type, similar to the one on C, above the point, *e*, and thus the impression is made.

When the lever, D, is released from the pressure of the hand, a spring throws back the impressing cushion, and the paper is released, and at the same time moved across a certain space to receive the impression of a new letter, and so on continuously. The feeding of the paper across is caused by a small cord passing over two small pulleys underneath, one pulley having a small notched wheel on it, into which a spring click takes, and which, as it is released and caught by arm K, vibrating, it moves the paper like the slide of a lathe. A band of paper of any length may be used on this machine, and the printed portion can be read as it is being fed out, as shown.

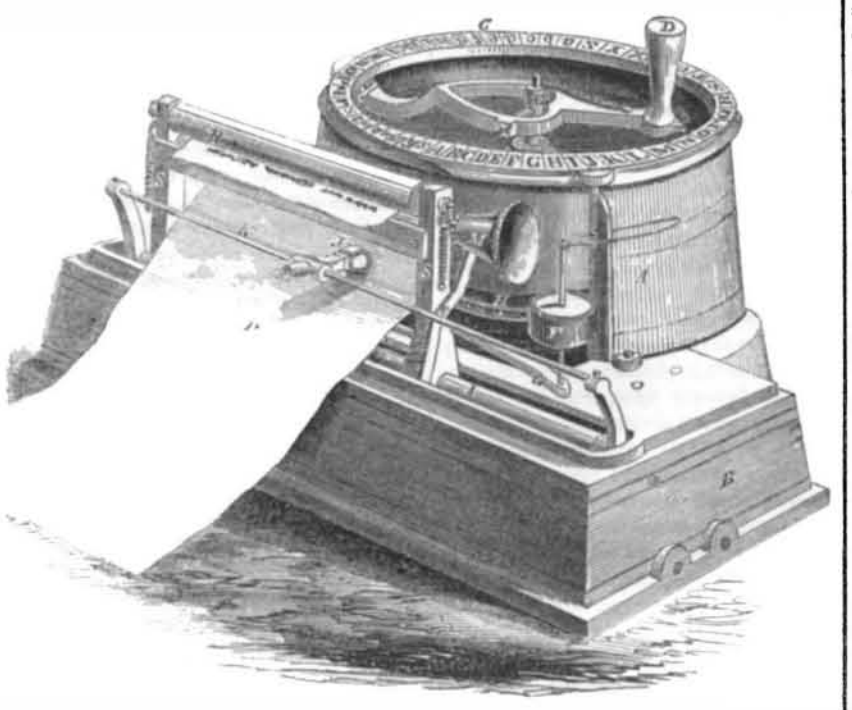
The types used are the common kind, and can easily be replaced when worn out The mechanism for moving the paper is very simple and ingenious. The type wheel is supported on, and revolves on anti-friction rollers underneath, so that the operation of working it is very free and easy.

This machine is well adapted to meet the wants of the community for various purposes. It can be brought into service in villages, in getting out hand-bills, notices, or labels of any kind, and forms a very instructive mode of teaching young persons to spell, punctuate, compose, &c., because they can reproduce, at pleasure, in printed form, essays in prose or verse.

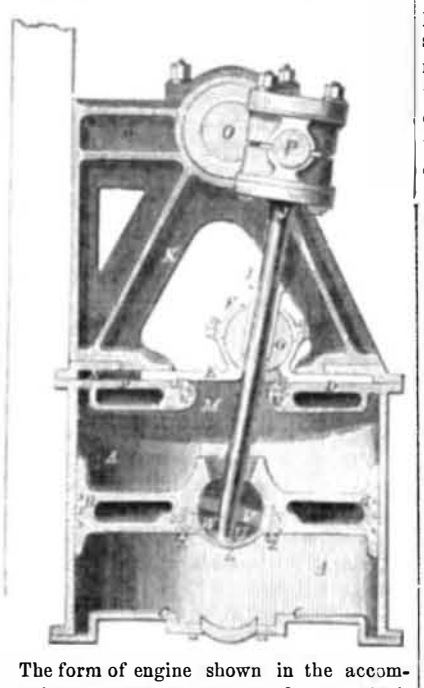
Patented May 20th, 1856.

Any information concerning these machines may be obtained by addressing or calling on Charles Bradfield, at his Agricultural and Mechanical Emporium, Fifth and Chestnut sts., Philadelphia, or from the patentee, John H. Cooper, No. 486 North Sixth st., Philadelphia, Pa..

## COOPER'S HAND PRINTING MACHINE.



### Improvement in Steam Engines.



The form of engine shown in the accompanying illustration is proposed as a substitute for the oscillating, trunk, and other kinds of engines designed for the purpose of economising space, and bringing the crank shaft closer down to or nearer to the cylinder. For marine purposes, and particularly for working the screw propeller, the advantage sought to be attained is known to be of the first importance. In this invention a cylinder of the ordinary form used for fixed cylinder engines is employed, but instead of using the ordinary cylinder cover, piston, and piston rod belonging thereto, a cylinder cover is substituted of the following description:—

The cover of the cylinder (the top part of which is surfaced,) has an annular recess accurately bored out for to receive an annular ring of metal, as also the hemp or other packing, and the springs or other elastic material; on the top of the cover is a metal sliding piece, which when the engine is in motion slides from one side to the other during the revolution of the crank shaft; the top part of the sliding piece is formed with a spherical concavity to receive about one-half of a sphere, which is partly covered by a gland; the sphere contains a stuffing box bored to the required depth; the hole being afterwards continued through must be the exact size of the piston rod, so as to allow of its passing through it. In the cylinder cover is a hole sufficiently long to allow of the oscillation or vibration of the piston rod, and which opening must be rather wider than the diameter of the piston rod. To the flange of the cylinder is bolted a circular plate or cover, as before described, and a space being provided for the sliding piece, which slides backward and forward during the revolution of the crank shaft between a metal ring (the inside of which is perfectly planed and made accurate) and the cylinder cover. The piston rod is connected to the crank pin in a manner similar to that used in oscillating engines, by a T-headed block with brasses, and the other end is connected to the piston in the following manner: The end of the piston rod is turned slightly conical, to fit into a corresponding hole bored in the boss or spherical part of the ball joint, gudgeon, or axle, and is firmly retained there by a cottar, which cottar passes through the boss and is retained by pins, thereby preventing it from sliding back. One half of the bottom ball joint, gudgeon, or axle attachment is fitted into a recess in the piston, and is retained there by a cover, which is made to fit perfectly close, and is securely held down by bolts, which bolts are prevented from unscrewing by a guard frame, which may also be secured by bolts or otherwise; the joint between the flange and the piston may be kept tight by means of a vulcanized india rubber washer. The illustration shows a vertical section of a marine screw engine. A A is the steam cylinder; B the piston; C the cylinder bottom; D the cylinder cover, the top part of which is surfaced for the metal piece, E, to slide upon; F is the metal sliding piece, which is formed with a spherical concavity to receive about one half of the sphere, G. F is a gland to secure the sphere in the concavity, and which will be seen does not completely cover the sphere, G. G is the sphere, which works in a spherical concavity in the sliding piece, E. K is the iron framework, bolted to the circular plate on cylinder cover for supporting the crank shaft, O. I is a gland, through which the piston rod, J, passes which is packed as usual; J the vibrating piston rod. In the circular plate or cover bolted to the top of cylinder, A, is a space, N, being provided to allow the plate, E, to slide backward and forward; L is a metal ring, one part of which is secured by bolts to the circular plate, and the other part is in contact with the sliding piece, E. M is a hole in the cylinder cover sufficiently long to allow of the oscillation of the piston rod, J. N is a space between the metal ring and the cylinder cover, D, in which the sliding piece moves; O is the crank shaft; P is the crank pin; R is the hemp or other packing; S the springs or other elastic material, which are let into an annular recess in the cylinder cover, D. P is the crank pin, to which the vibrating piston rod, J, is attached by T-headed brass bearings, or a block fitted with brasses; U the end of the piston rod, J, which is turned slightly conical to fit into a corresponding hole bored in the boss or spherical part of the ball joint, gudgeon or axle, W. V is a cottar, which passes through the boss and conical end of piston rod, and is retained by cross pins passing transversely through it, thereby preventing it from slipping back; X is a cover piece on the under side of the piston, and which serves to retain the ball joint, gudgeon, or axle, W, the closeness of which can be adjusted by the bolts, Y. Z is an india rubber washer, placed between the nut and the cover. In the illustration the gland of the piston rod is being held down and tightened by means of two bolts at the sides thereof, but a screwed gland may be substituted therefore, and fitted into the stuffing box, and which may be set down by means of notches or teeth formed on the head of the gland piece, into which a suitable spanner will take. It is also proposed, when necessary, to form the annular rings, slides, and fittings on the cylinder cover with a double step or break in section, so as more effectually to check and prevent the escape of steam.

[This illustrated description is from the London *Engineer;* the improvement has been secured in England by patent, granted to W. Young. The importance of bringing the crank shaft as near to the cylinder cover as possible is very desirable, and many contrivances for this purpose have been designed; this is one object of the oscillating cylinder and the trunk engine. The objections to the oscillating engine are, that the whole weight of the cylinder and adjuncts must be put in motion every stroke, thus throwing considerable strain on the piston rod and crank, and it is also asserted, they cause a torsive action of the whole engine, especially when it is a large one, like an oscillating marine engine. The advantages of the oscillating engine are designed to be obtained by this improvement, while its evils are obviated. The trunk engine has but a small area of piston—an evil not belonging to this one, while its advantages are obtained. The improvements here claimed, therefore, deserve general attention by our engine builders.