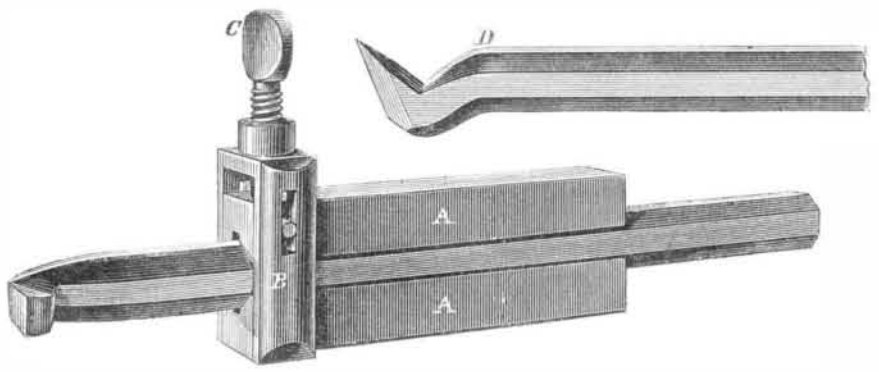
Improvement in Method of Holding Lathe Tools.

The springing of turning and planing tools, when turning out a hole or cutting a deep nut, or on the planer when reaching down to plane a surface much below the face of the work, is a great annoyance to machinists. Sometimes, however slight the chip removed—even in finishing or smoothing—no amount of skill or delicate feeding can prevent the tool from leaving "chatter" marks.

The engravings represent a contrivance designed to remove this difficulty by providing a stay, or, rather, two stays or holders, embracing front and rear, or top and bottom of the tool shank. The holders, A, pass through the slot in the tool post, the lower one being fast to the jaws, B, and the upper one moving freely, held only by a pivot pin moving in slots in the jaw to accommodate itself to the size of the tool shank, and secured on the shank of the tool by the thumb or set screw, C. The tool shown in the holder is an ordinary squaring-up or side tool, and the one shown at D is a common diamond point. In this case the tools, are made from octagonal steel, but the ordinary rectangular tool steel can be equally adapted to the tool holder.



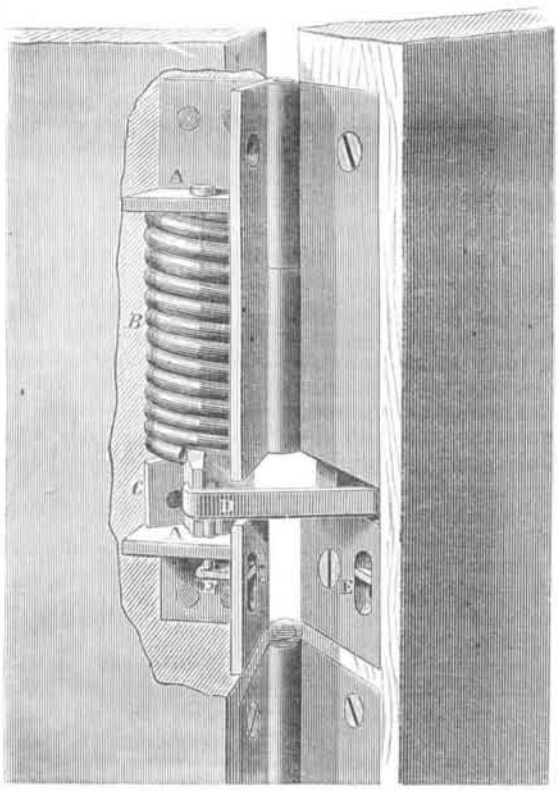
BAILLIE'S PATENT TOOL HOLDER.

Patented Feb. 25, 1868, by John Baillie, Salem, Ohio. The patentee wishes to dispose of the whole right.

STIMSON'S PATENT BUTT HINGE DOOR SPRING.

The closing of doors is one of the neglected duties of careless humanity, causing annoyance and provoking profanity. Some door springs, intended to prevent this annoyance, are neither reliable, permanent, nor certain in their operation. That represented in the engraving appears to be free from these defects.

The spring butt, or the hinge that contains the spring, is cast with two leaves instead of one, as is the ordinary butt hinge, one mortised into the edge and the other into the back of the door. Between these two leaves are two transverse connections, A, which serve as supports to a spiral spring, B, and as bearings for the axles of a corrugated plug passing through its center. This plug has at its bottom several vertical flanges, C, upon which the spiral spring rests and against one of which the bottom end of its wire bears. Holes in these flanges by a suitable wrench permit the winding up or turning of the spring to increase its tension. A hooked strap, D, engages with one of the flanges on each spring and connects the two. The operation is to employ the torsion or twisting of the spring rather than its longitudinal elasticity. The effect is to allow the greatest force to its action when the door is nearly closed, just where most door springs fail; they usually exerting their greatest power when the door is wide open, and their least when it is closed. In swinging a door wide open, with this spring the tension on the spring amounts only to one-fourth a revolution, so there is slight danger of its breaking by being overstrained.



If at any time the use of the spring is undesirable and the door is to be free, the slipping up of catches, E, will engage them with the flanges, C, and prevent the rotation of the spring. The strap or connection, D, can then be removed, or one end unhooked and placed in one of the interspaces between the flanges when, while the door may be opened wide, it cannot be closed, being held either at right angles with the wall or half way between, as may be desired. This is a great convenience in hot weather. Patented by Enos Stimson, of Montpelier, Vt., November 19, 1867. The New England Butt Co., Providence, R. I., are manufacturing the improved butts and are prepared to fill orders.

A BLIND INVENTOR.

An interesting biography of James Gale has just appeared in England. Mr. Gale "was blind from his youth up." Yet, notwithstanding this apparently insurmountable obstacle to mechanical success, he has achieved even fame by his inven tions. Mr. Gale was not educated in a school for the blind, nor by the methods usually adopted with this unfortunate class of youth. Instruction was imparted to him by dictation, a method which, by its evident success in this case, would seem to be worthy the attention of instructors. He was thus taught reading, arithmetic (of course substituting the sense of touch for that of sight), and even what would seem more difficult, writing. Few blind people, who have arrived at any distinction, have been educated in any other schools except those specially instituted for the blind; and it is stated that very few indeed of those so educated are able to support themselves by their own labor.

Mr. Gale early showed that the loss of sight would not render him a useless member of society. His senses of hearing and of touch were so remarkably acute as to almost enable him to conceal the fact that he was blind. Indeed, it is related of him, that once, while riding in a carrier's van from Plymouth to Tavistock, the driver lost his way, and was guided by him into the right road by the sense of hearing alone. He has several times acted as a guide to strangers, effectually concealing his blindness until he had reached the end of his journey. More astonishing feats are related of this remarkable man. He has ridden a horserace and won it. He has ridden a blind horse for miles in safety, and has shot pigeons at a match, his aim being guided by his delicate hearing.

In 1864 he singularly enough commenced experiments with gunpowder. In one year he had made the discovery that this substance could be handled and transported in safety when mixed with fine glass, which may or may not have been the hint which led to the subsequent discovery of dynamite. He has since invented an ammunition slide, and a rudder ball cartridge, by which, it is stated, great rapidity in firing can be obtained. Another invention of his is the "fog shell," designed to be projected upon the decks of vessels, and to generate a dense, blinding vapor, which would seriously embarrass them in an engagement. Another invention is what he calls a balloon shell, which is said to clear a space having a diameter of a hundred feet, from all but the most ponderous objects, at a single explosion.

The lesson taught by the life of such a man ought to put to the blush those who so easily succumb to obstacles far less formidable than he has had to encounter. The very nature of his experiments upon a material seemingly so dangerous to one deprived of sight, shows his courage and the strength of his character.

He is a good business man, and a lover of his race. Sympathizing with those who are, like him, destitute of sight, he founded the South Devon and Cornwall Institute, for the blind, which will stand as a monument of a mind that soared above obstacles, and a heart unembittered by the cruelest of all deprivations.

The Soda Lakes of Mexico.

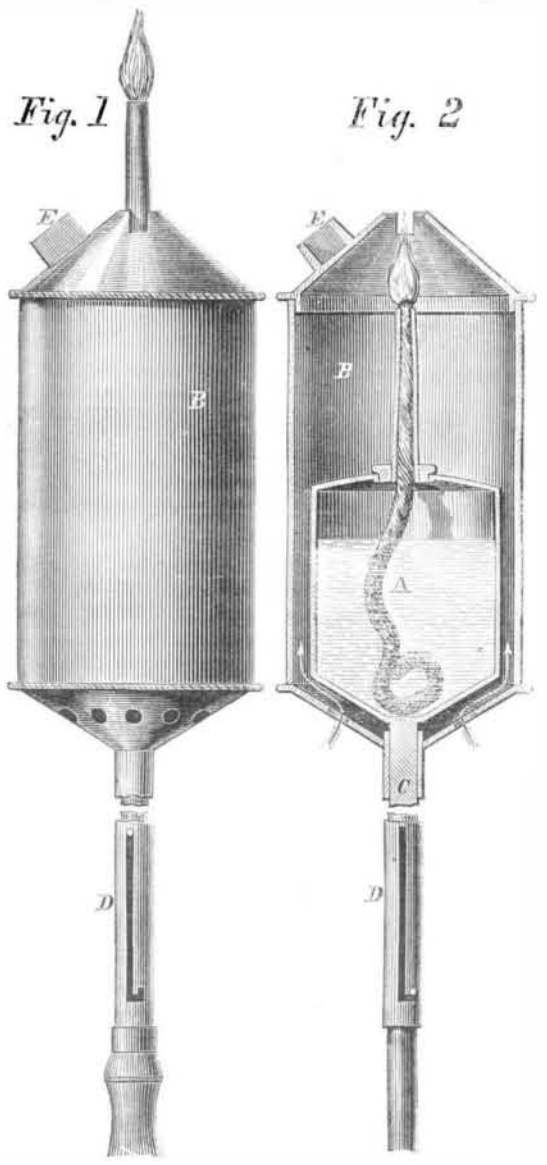
The soda lakes of Mexico, from the waters of which crude soda is largely manufactured, are among the natural sources of wealth to that country. The lake of Tescoco, a short distance from the capital of Mexico, and communicating with the city by means of a canal, is one of the greatest natural curiosities of that country. In the center is a barren island, with a hill composed of volcanic rock, and known as El Penon de los Bancos, or rock of the baths, rising from the surface. This desolate spot is famous for the manufacture of crude soda, or tequesquite, a manufacture not more remarkable for its primitive method than its vast resources. The earth of the valley adjoining the lake is impregnated with a species of soda, and Lake Tescoco itself is a concentrated solution of soda. It contains an immense amount of the salts of sodium, chiefly the chloride of sodium and the carbonate of soda. The lake has great surface and small depth, and with a rainy season of four months and a dry season of eight, its range of expansion and contraction is 220 square miles at its maximum to 80 square miles at its minimum. A calculation of the contents of the lake was made in 1851, when the lake was considerably contracted, and the proportion of solid matter was ascertained to be not less than 18 per cent. The Penon soda stills are not numerous, but illustrate the rude principle at work all around the lake. They are simply mounds of accumulated dark, bluish mold, on which large round holes are made here and there. In these holes bags are placed, and in the bag the impregnated, frosty-looking earth found every morning along the lake. Over this earth water is poured, and the liquor which sinks through the dirt, and is drained from the bag, passes into a vessel below. The solution thus caught is evaporated over a fire, and tequesquite is the result. This is the whole process, which is the same that was used in the days of Montezuma. With this primitive system of manufacture, the lake, according to the estimates of the School of Mining in the city of Mexico, produces annually 1,680,000 pounds of crystallized or pure soda, and 3,696,000 pounds of tequesquite or impure soda.

Styptic Paper.

The styptic properties of perchloride of iron are well known, but in many cases it is inconvenient to carry about and to apply in case of need. A method of preparing paper with this substance, so that it can be carried safely in the pocket, at the same time preserving the styptic quality has been invented in Paris. The paper is first dipped in a solution made of one pound of gum benzoin of the first quality, one pound of rock alum and four and one-third gallons of water. This mixture is heated in a vessel, carefully tinned inside, up to the boiling point; and the solution is to be kept boiling for four hours, and skimmed from time to time. The water evaporated is to be replaced by the same quantity of fresh water, and, as soon as the solution is cooled, it is to be filtered off. The paper or tissue is then dipped into it, and to be kept there until sufficiently saturated; it is then to be carefully dried. When dry, a solution of the perchloride, in a more or less concentrated state, is applied by a brush or roller. The paper or tissue thus prepared is folded up and preserved from the action of the air by wrapping it in a piece of waterproof taffeta, prepared with the addition of resinous substances, and in this manner it can be preserved any length of time always ready for use. Its application to small wounds will stop the bleeding almost instantly.

PATENT TORCH FOR LAMP-LIGHTING.

The object of the device herewith illustrated is to diminish the labor and time of lighting street, hall, or depot lamps, when beyond the reach of the hand, obviating the necessity for the use of a ladder and preventing the extinguishment of the light by gusts of wind. Its construction is simple. The lamp proper, A, Fig. 2, is contained within a case, B, and af fixed to a rod, C, which forms a portion of the handle, that may be of any length desired. The case is sustained on a metal tube, D, in which the handle, C, slides, the distance of its movement being governed by a slot in the tube and a pin on the handle. The object is to withdraw the flame of the lamp within the case as the operator passes from one lamp to another, to prevent the flame from being blown out. To insure continued combustion the lower part of the case is pierced with holes to admit air, as seen in Fig. 2, which also shows the lamp drawn into the case. The snug, E, is a wrench for opening the gas cocks and a slot across the top of the case is for a similar purpose. From the foregoing description a sufficiently clear idea of the device and its use may be obtained.



Patented through the Scientific American Patent Agency Feb. 4, 1868, by Albert Assman, Rahway, N. J., who will dispose of the whole or partial rights.