2 Sheets—Sheet 1.

R. MONTGOMERY.

Ordnance.

No. 34,666. Patented March 11, 1862.

Fig. 4

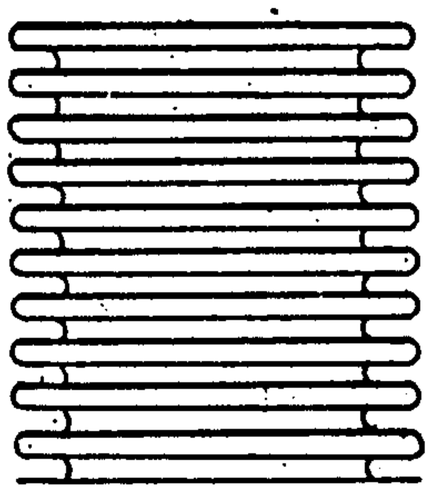


Fig. 3

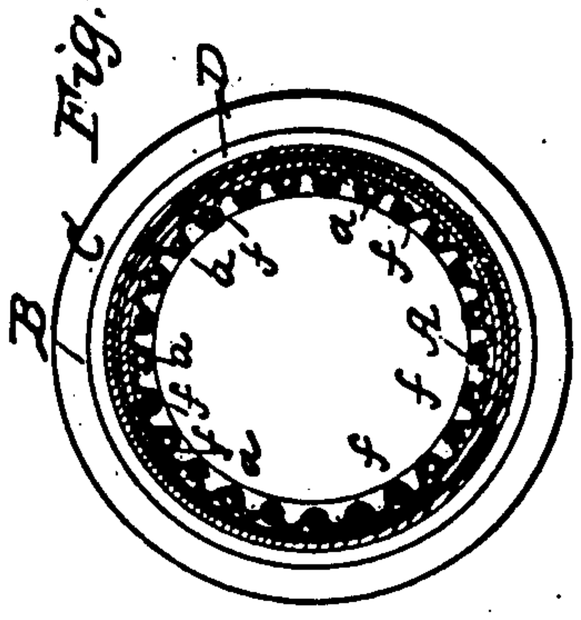


Fig. 1

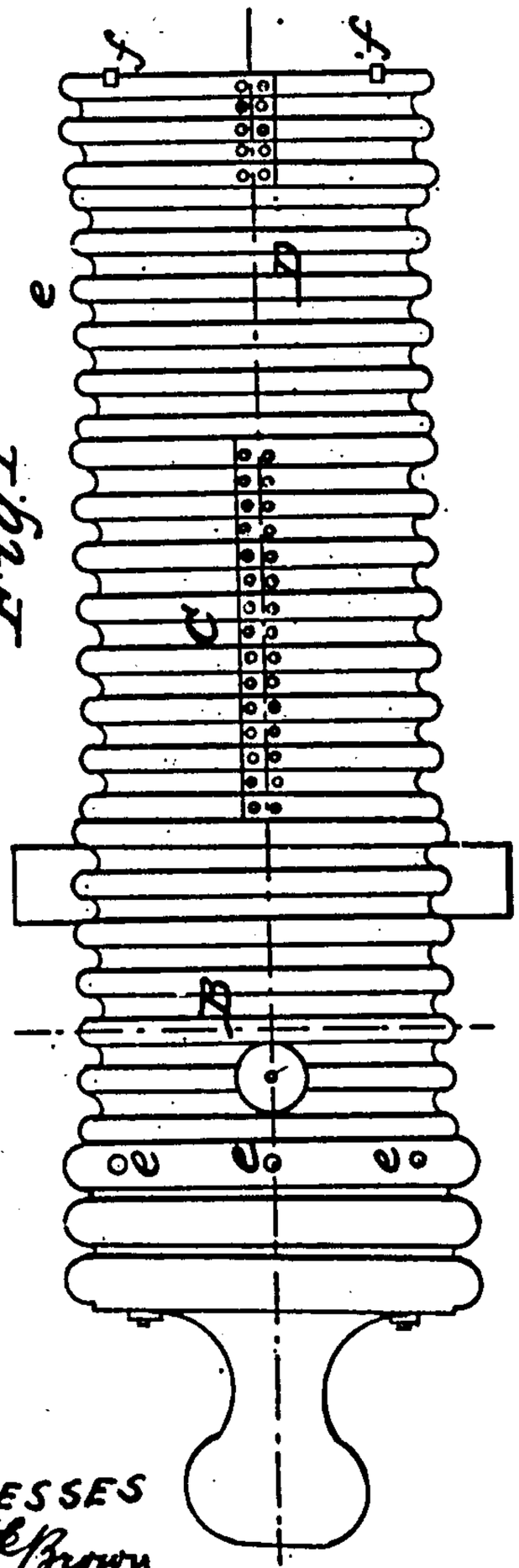
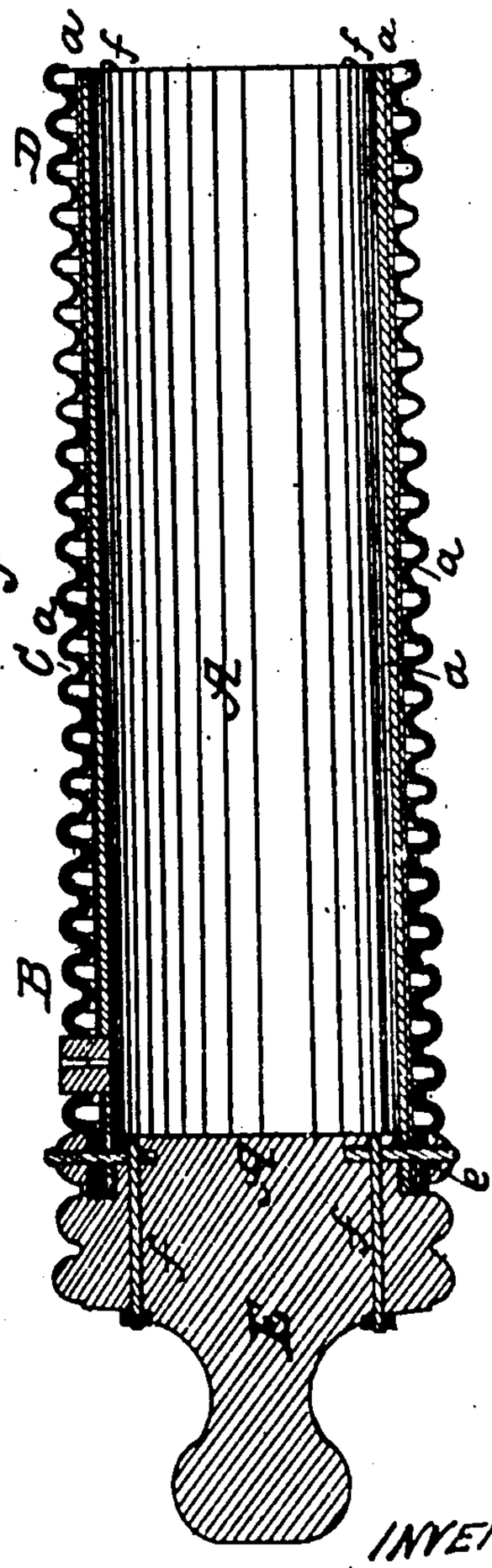


Fig. 2



WITNESSES

Edwin F. Brown

Chas. A. Brown

INVENTOR

Richard Montgomery

2 Sheets—Sheet 2.

R. MONTGOMERY.

Ordnance.

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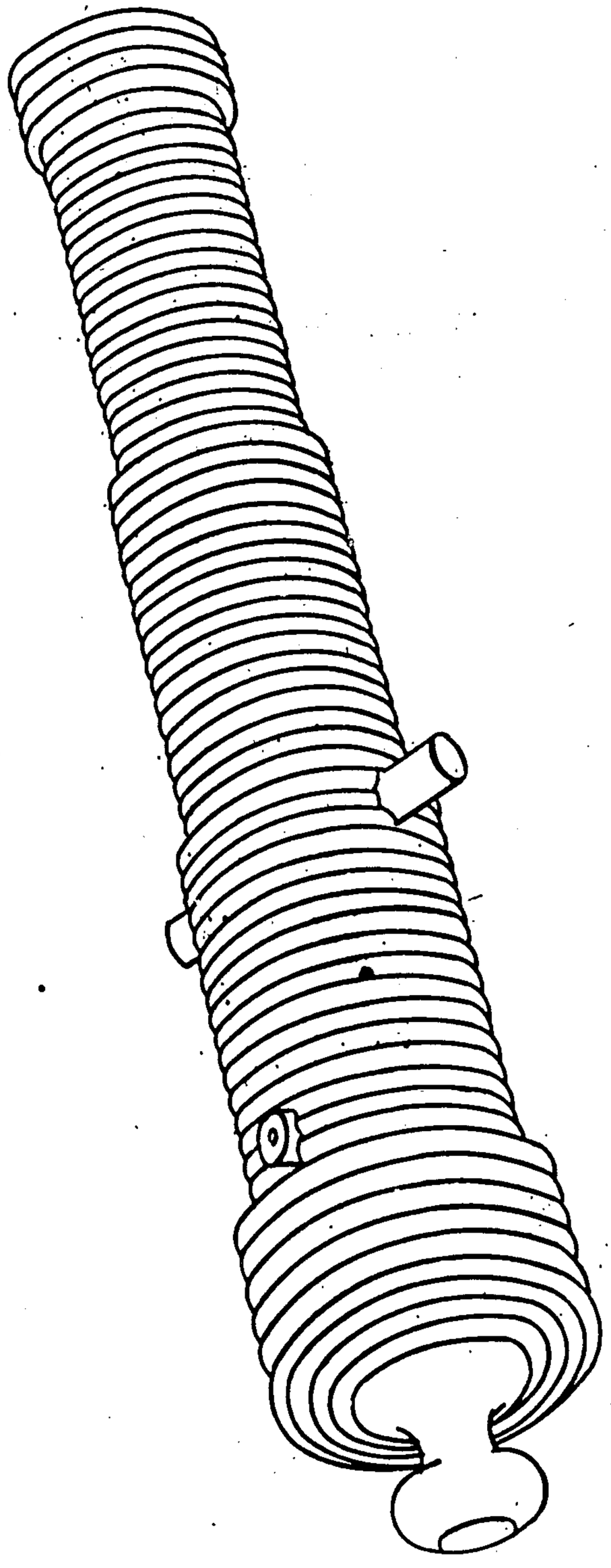

UNITED STATES PATENT OFFICE.

RICHARD MONTGOMERY, OF NEW YORK, N. Y.

IMPROVEMENT IN ORDNANCE.

Specification forming part of Letters Patent No. **34,666**, dated March 11, 1862.

To all whom it may concern:

Be it known that I, RICHARD MONTGOMERY, of the city, county, and State of New York, have invented new and useful Improvements in Constructing Cannon and other Ordnance; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification.

Figure 1 represents a top view, or the exterior of the cannon. Fig. 2 shows a longitudinal section through the center of the gun. Fig. 3 is an end view or cross-section showing the barrel, tubes, and outer casing. Fig. 4 shows a detached view of the outer shell, with parallel sides and inverted arches above and below.

My invention consists in the application of corrugated wrought iron or steel in the construction of cannon or other ordnance, the mode of increasing the strength to any required capacity on the outer shell of the cannon by using a series of corrugated layers or thicknesses divided transversely in section, the one corrugation fitting in the other, the corrugations running around in the direction of the curves of the arches; also, the manner of bracing the longitudinal inner portion or barrel by bars of metal or hollow tubes secured in the corrugations between it and the outer surface; likewise the double or cross bolting of the breech to the barrel, which serves to hold the breech firmly in place.

To enable others skilled in the art to make and use my invention, I will proceed to describe the construction in detail, and the peculiar advantages of the material used and applied, referring to the drawings, and to the letters of reference marked thereon.

The barrel A may be made of any size and caliber, the corrugations running lengthwise, which answers the double purpose of rifling and strengthening, and is a matter of great economy in the cost of construction. The corrugations may be made straight or spiral, thereby producing the effect of any rifled gun. On the barrel A may be inserted into each alternate corrugation metal bars or tubes *a a a a*, for the purpose of adding strength to the structure. When tubes are used for this purpose, they at the same time may serve the purpose of barrels *a a a a*, from which small projectiles may be fired.

The barrel A is incased within a covering B C D of corrugated metal divided transversely in section, the corrugations running round, as shown in Fig. 1. The thickness of the metal at the rear part B, composing the outer shell or case of the cannon, may be variable. The rear parts B and A′, which are secured to the breech E, should be made of three or more thicknesses, the following section C, being less heavy, not requiring so many thicknesses, and so on down to the muzzle D, thus the whole outer surface or shell presenting a corrugated surface, the corrugations running around in the direction of th curves. These sections can be united or detached at will. The inner barrel A of the gun is made of one continuous length. The corrugated barrel A′, one of the series of the covering B, is secured to the breech E by bolts *e e* and longitudinal bolts *f f*, running the whole length from the muzzle to the breech. By placing the folds of the metal vertical, or nearly so, as seen in Fig. 4, it will impart still a greater strength to a given weight of metal.

Among the great advantages to be derived from my invention the following may be enumerated: The metal being prepared and rolled in this form is equivalent to the discovery of a new material for ordnance by imparting the greatest amount of strength with the least weight of metal. The process of corrugation will show any latent defects in the material, so that every piece used in the manufacture will be known to be perfect before being placed in the cannon, by which means the danger of bursting will be greatly diminished. In the present process of manufacturing wrought-iron ordnance, the great mass of metal when heated sufficient for welding the central or inner portion the surface will be overheated, so as to impair its uniform strength, which is the cause of so many fatal accidents.

By my improved mode of making wrought cannon the amount of time and labor is greatly diminished, the parts being prepared and put up in sections, whereas the present manner of constructing ordnance requires a large force to handle them, they being all of one mass of metal, and, furthermore, the great

difficulty existing in the present ordnance is there being no elasticity to ease off the strain upon the metal or admit of its expansion. By my mode this is entirely obviated, the corrugation allowing the parts to expand freely. My cannon differs in all the essentials that give efficiency to this arm of war. Guns of large caliber are thereby rendered light and portable and may be taken in pieces and transported in sections; and these differences constitute their immense superiority and value for war purposes.

Having thus described my invention, its peculiarity of construction, and its merits, what I claim as new, and desire to secure by Letters Patent, is—

1. Incasing a longitudinally-corrugated cylinder with a series of corrugated layers divided transversely in sections, the corrugations of which fit into each other and run around in the direction of the curves of the arch, as described.

2. In combination with the outer and inner cylinders thus formed, the use of the hollow tubes or bars *a a a a*, as and for the purposes set forth.

3. In combination with the outer and inner cylinder thus formed, the mode herein described of securing the several parts thereof to each other and to the breech of the cannon—that is to say, the bolts *e* and *f*, arranged as set forth.

RICHARD MONTGOMERY.

Witnesses:

EDM. F. BROWN,

CHAS. M. BROWN.